

“Institutions, credit markets and development in Sub-Saharan Africa”

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ARTICLE INFO	Nyasha Mahonye, Kwaramba Marko and Coulibaly Amina (2016). Institutions, credit markets and development in Sub-Saharan Africa. <i>Banks and Bank Systems</i> , 11(4-1), 169-178. doi: 10.21511/bbs.11(4-1).2016.08
DOI	http://dx.doi.org/10.21511/bbs.11(4-1).2016.08
RELEASED ON	Thursday, 22 December 2016
JOURNAL	"Banks and Bank Systems"
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

0



NUMBER OF FIGURES

0



NUMBER OF TABLES

0

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Institutions, credit markets and development in Sub-Saharan Africa

Abstract

This paper reviews the evidence on the impact of institutions and credit market on development outcomes. The study uses panel data techniques and the data is from 1995 to 2013. The results shows that the better the institutions, the higher the credit extension to the private sector and higher the level of economic development. This applies also to credit market. If credit market functions well, development is bound to increase. This has important implications for policy in Africa. Governments should aim to improve their institutions to increase the economic development of their countries. Also, improvement in markets, especially, credit access will increase development.

Keywords: institutions, credit market, development and Africa.

JEL Classification: E5, C23, O16, G1, G21.

Introduction

Development economics has increasingly recognized the importance of institutions in economic behavior (see Harriss et al., 1995, Poulton et al., 1998). This has led to increased acknowledgement of the importance of institutions in global thinking, an example being the 2001/02 World Development Report, entitled Institutions for Markets (World Bank, 2002), arguably bringing institutions into mainstream of development policy. The importance of institutions and quality of credit markets is central to Africa development (Fedderke et al., 2001).

Institutions are generally defined as “constraints that human beings impose on themselves” (North, 1990). These institutions may be of legal structures, business practices, property rights, explicit or implicit contracts and systems of governance. Institutions prohibit, permit or require specific type of action, that is political, economic or social, which are important for reducing transaction costs, for improving information flows and for defining and enforcing property rights. Institutions determine the framework in which factors of production are used and developed. Institutions and institutional mechanisms for development provide the “missing link” that can explain differences in growth rates and development paths across developing and developed countries (Acemoglu, 2006). East Asia miracle countries showed the importance of institutions in economic development (Rahman, 2007).

1. Motivation

In the particular case of Africa, underdevelopment of countries was generally attributed to failures in factor endowments, particularly a lack of capital (both physical and human) and foreign exchange for the acquisition of intermediate goods and essential equipment (Bardham, 2001). Over the last two decades, there has

been a growing awareness that the way out of poverty is often strewn with institutional obstacles, that go far beyond simple failure in factor endowments and whose resolution requires much more than just foreign aid flows, or even increase of domestic savings. Easterly (2002) finds that poor institutions of developing countries, especially African countries, are the main cause of ineffectiveness of debt relief in these countries. Following the same idea, economic report in Africa (2010) shows that one important driver of economic growth and development in Africa is stable macroeconomic and political environment and better economic management, that is, good institutions. Credit markets are central in economic development. Therefore, policymakers must understand the key institutional drivers of economic growth and development in Africa. So, this paper addresses two key questions: How do institutions contribute to development outcomes in Africa? And how does credit market affect development outcomes in Africa?

This paper reviews the evidence on the impact of institutions and credit market on development outcomes. This objective is based on the fact that although a consensus that institutions “matter” has now emerged, the causality of the various links and channels of influence between the institutional set-up and development outcomes is not well understood for Sub-Saharan African (SSA) countries. The paper is unique, as it looked at the impact of quantity and quality of credit resources on economic development through institutions.

2. Brief literature review

There is a distinction between the institutional environment and institutional (or contractual) arrangements (Davis and North, 1971). Aron (2000) finds that measures of development are significantly positively correlated with: protection of property rights and enforcement, civil liberties; political rights and democracy; and institutions supporting cooperation, including trust, religion, and the extent of social clubs and associations; and negatively with political instability. He also shows that the promotion of social capital strengthening informal institutions may positively influence

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economic growth both directly and indirectly and quality of institutions has a robust and significant indirect relationship to economic growth via its effects on the volume of investment.

Institutional arrangements are interpreted as a distinction between particular sets of rules and structures governing particular contracts. Institutional environment consists of general property rights, enforcement mechanisms, costs, expected human behaviors, power relations, communications infrastructure and information flows. A key point that emerges from an examination of institutional an economic development using these concepts is

that low income economies are characterized by high transaction costs and risks, weak information flows, and a weak institutional environment. Actors with little in the way of financial and social resources or political leverage face high costs in accessing information and in enforcing property rights. These costs inhibit both market development and access to existing credit markets, in turn, inhibiting economic and technological development. Low levels of economic activity can lead to thin markets, inadequate co-ordination, high transaction costs and risks, and high unit costs for infrastructural development. The result can easily be a “low level equilibrium trap”, as shown in Figure 1.

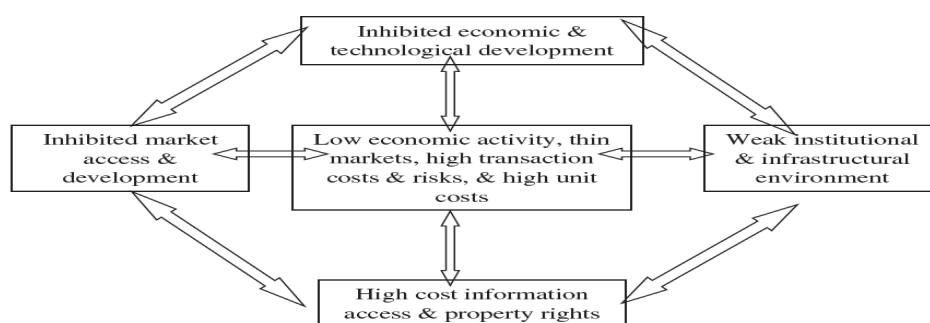


Fig. 1. Institutions and the low level equilibrium trap

Source: from Dorward et al. (2003).

Knack and Keefer (1995) use two indices (from the World Bank and International Country Risk Guide (ICRG) and the Business Environmental Risk Intelligence (BERI)) measuring institutional quality services and investment and economic growth as dependent variables and find that institutions that protect rights are crucial to economic growth and to investment. Campos and Nugent's (1998) results emphasize a nexus between institutional development and per capita income growth through human capital formation. Rodrik et al. (2002), using rating of institutional quality with respect to enforcement of property rights and the strength of the rule of law, show that institutional quality has a positive and significant effect on economic integration. Gaviria et al. (2000) find strong support for the idea that high levels of political constraints and intermediate levels of political particularism are associated with a quick recovery from economic shocks.

3. Methodology

This paper utilizes two methods: qualitative and econometric approach.

3.1. Qualitative approach. The qualitative involves the use of graph, tables comparing the three variables markets, institutions and development. This data is mainly from secondary sources: World Bank and International Country Risk Guide (ICRG). The qualitative methodology involves analysis of trends of secondary data, focusing on 15 Sub-Saharan Africa (SSA) countries which include Zimbabwe, Zambia,

Swaziland, Botswana, South Africa, Côte d'Ivoire, Mauritius, Ghana, Kenya and Namibia while the econometric analysis uses 10 SSA countries. Our analysis is influenced by data availability.

3.2. Econometrics approach. The model looks at the impact of institutions and credit markets on economic development. Our measure of development is economic growth (gross domestic per capita) and investment (gross fixed capital formation). We follow Sachs (2003), Dollar and Kraay (2002) in using gross domestic product per capita as a measure of development and also Knack and Keefer (1995) in using investment as a measure of development outcome. Institutions measured by indexes are represented by regulatory quality, control of corruption and democratic accountability. The same has been used in literature by Knack and Keefer (1995), La Porta et al (1998), Bockstette, Chanda and Putterman (2002), Rodrick Subramania and Trebbi (2004). Market is measured by domestic credit to the private sector as percentage of gross domestic product. This measure is widely used in literature and it can proxy how easily is credit received from the market (Ahmad and Malik, 2009).

This study uses data for 10 Sub-Saharan Africa countries over 18 years. It's a panel with $n = 10$ countries and $t = 15$. Data are from 1995 to 2012.

The model is specified as

$$y_{it} = \alpha_i + x_{it}\beta + \varepsilon_{it}, \quad (1)$$

where y_{it} is the dependent variable for country i at time t . In this case, a proxy for development as justified above is GDP per capita (gdpper) and also investment is proxied by gross fixed capital formation (gfcf_pvt). α_i is constant term of country i . ε_{it} is the error term. x_{it} are explanatory variables which are measures of institutions and market. We have three measures of institutions (I) which are regulatory quality (rq), control of corruption (cc) and democratic accountability (da). For definition of these variables see Appendix 1. The market variable used is domestic credit to the private sector as percentage of gross domestic product (dc_pvt). The above equation can, therefore, be represented by these defined variables as:

$$\log(\text{gdpper}_{it}) = \alpha_i + \beta_1 I_{it} + \beta_2 \text{dc_pvt}_{it} + \varepsilon_{it}, \quad (2)$$

$$\text{invest}_{it} = \alpha_i + \beta_1 I_{it} + \beta_2 \text{dc_pvt}_{it} + \varepsilon_{it}, \quad (3)$$

where I_{it} is measure of institution which is represented by three indexes, as advised in the preceding paragraph. Equations one and two represent growth and investment equation as measures of development. Estimation is done in three different ways, running regression with only two explanatory variables - one institutional measure variable and market variable. The other specification is with all the three institutional measures included and market variable to represent explanatory variables. For robustness checks we include gross fixed capital formation and inflation to see whether results from equations 2 and 3 results

above hold. Panel data methodology is employed. Human capital development is included in GDP per capita equation as an additional control variable.

4. Results and discussion of results: qualitative approach

This section deals with the qualitative approach. It relies on secondary data from World Bank and International Country Risk Guide. The various index of measuring institutions are used to compare them to GDP trends and investment. The market variable, in this case, the domestic credit to the private sector (% of GDP), and market information from essay of doing business report. Under this section, the study reports some sampled countries with their statistics. Most of these are among the 10 countries that will be used in a panel regression on institution, market and development. Results are as discussed below.

GDP per capita and Regulatory Quality. From Figure 2, it is clear that there is a positive relationship between GDP per capita and regulatory quality. This is evident from Zimbabwe, where the regulatory quality was declining and GDP was declining also. Kenya's regulatory quality was increasing so was also the GDP per capita. Cote d'Ivoire shows this trend also. When the regulatory quality was deteriorating, GDP per capita was also declining. This figure points to the importance of institutions to development which in this case is measured by GDP per capita. This points that regulatory quality promotes economic activity, hence, increase in GDP per capita.

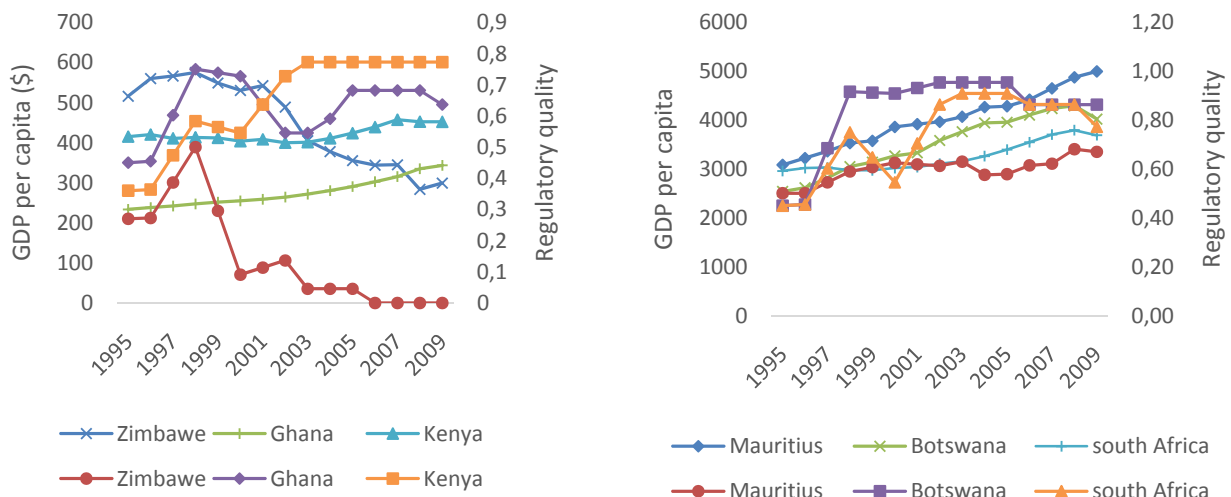


Fig. 2. GDP per capita and regulatory quality

Source: authors' computation.

Relationship between GDP per capita and rule of law. On the relationship between GDP per capita and rule of law it is clear from the figure below that countries with good rule of law quality are also experiencing an increase in development. It is also an index between 0 and 1 with 1 being good rule of law. Botswana and Mauritius shows that the higher the rule

of law the higher the GDP per capita. Countries with low GDP per capita shows that they lack rule of law. South Africa also has higher GDP per capita and higher rule of law index though it seems its in terms of rule of law it closer to Ghana, Zimbabwe and Côte d'Ivoire. Private business flourish where there is rule of law.

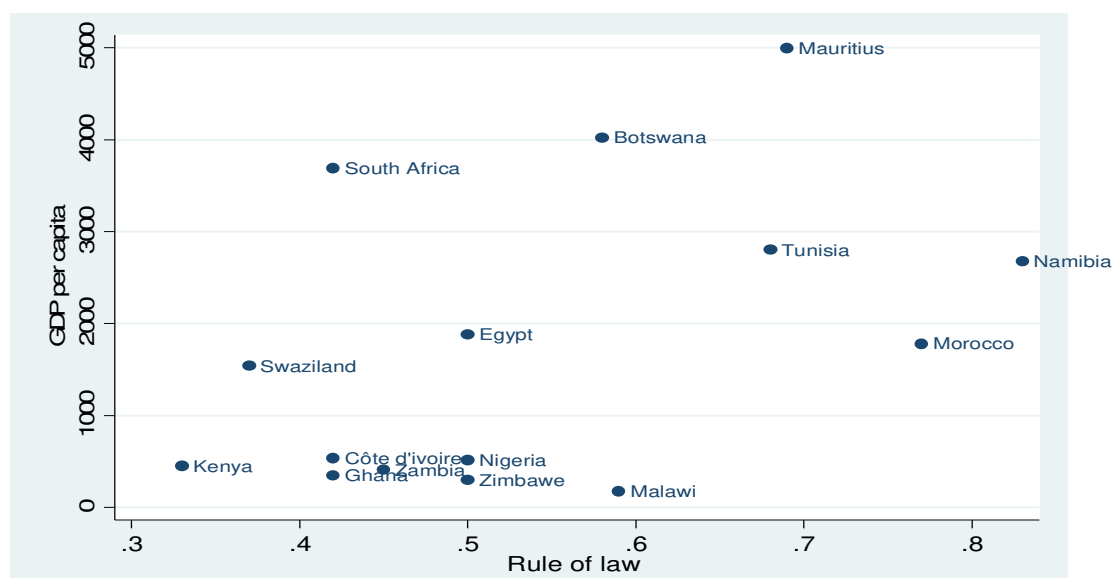


Fig. 3. Relationship between GDP per capita and rule of law for 2009

Source: authors' computation.

Control of corruption and investment. There is also a positive relationship between investment and control of corruption. From the figure below, Côte d'Ivoire shows that there is a sharp positive relationship between control of corruption and investment. This is

depicted in 1998 and all the 2000s years. Ghana also shows this relationship vividly. Zimbabwe though the later years seems to lack data it also depicts this positive trend. Corruption poses a cost to business operation and, hence, retards development.

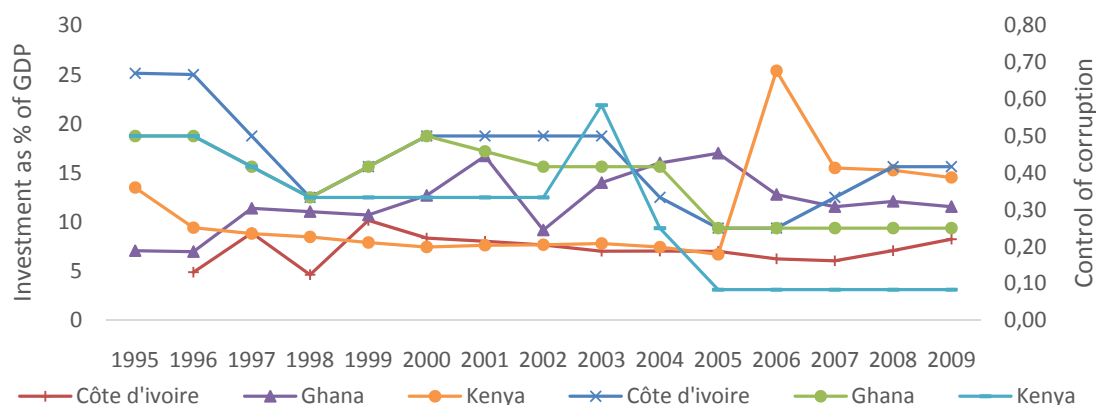


Fig. 4. Control of corruption and investment (gross fixed capital formation-private)

Source: authors' computation.

This trend is also shown for the high performing economies in our sample, Botswana, Mauritius and South Africa. Surge in control of corruption in South Africa

between 2001 through to 2004 is also reflected in decline in investment. This trend points to the importance of institutions in shaping economic development path.

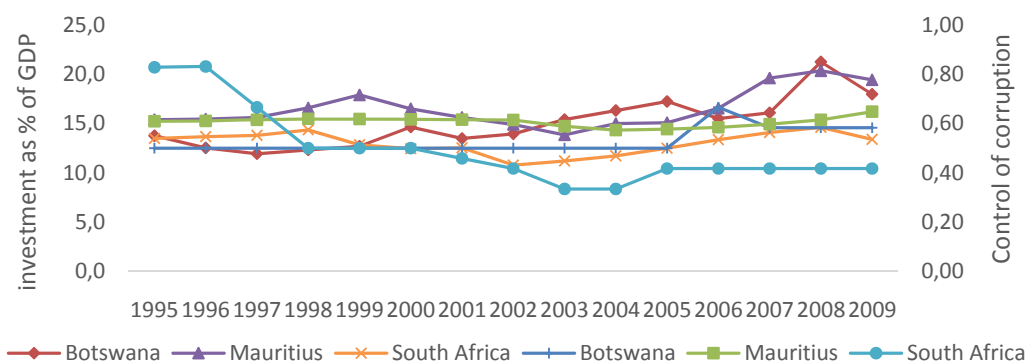


Fig. 5. Control of corruption and investment (gross fixed capital formation-private)

Source: authors' computation.

Human Development Index (HDI) and Voice and Accountability (VA). There is a clear relationship between HDI, our measure of development, and Voice and Accountability. Voice and Accountability captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association

and a free media (Kraay and Mastruzzi, 2010). Cote d'Ivoire has low Voice and Accountability and also low Human Development Index. This shows that VA plays a central role in human development which is composite measure involving health, education and GDP. If the government is autocratic, it will not care about development issues.

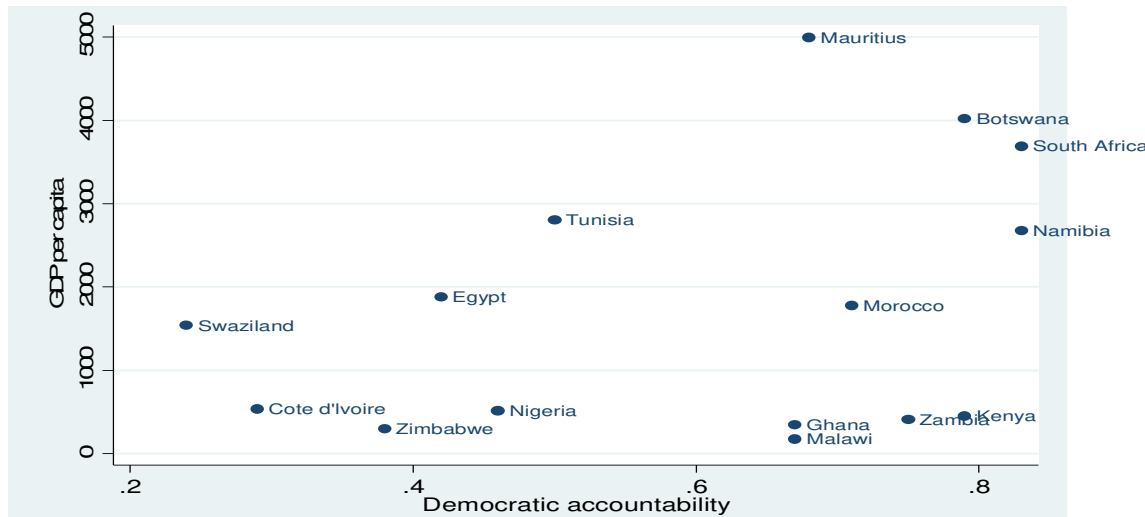


Fig. 6. HDI and voice and accountability

Source: authors' computation.

Political troubles and GDP per capita. Political troubles disturb the workings of the market and private business activities. It scares away investors and, hence, contributes to decline in GDP. It is clear from Figure 7 below that those countries that have/is ex-

periencing political troubles also face a low GDP per capita. Zimbabwe is the case in point. It has highest political trouble index and has a low GDP per capita. Mauritius and Botswana have zero political troubles and also higher GDP per capita.

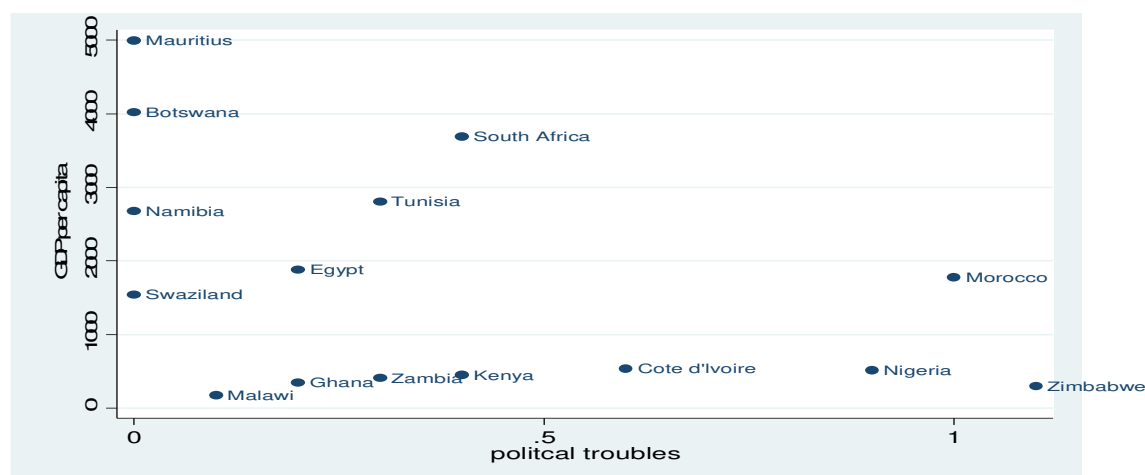


Fig. 7. Political troubles and GDP per capita

Source: authors' computation.

GDP per capita and domestic credit to private Sector. Domestic credit to the private sector as percentage of GDP is our measure of market. Countries which have high domestic credit given

to the private sector has also higher GDP per capita. South Africa, Mauritius and Namibia demonstrate this clearly. Côte d'Ivoire, Ghana and Zambia show that the lower the credit to private

sector the lower is the GDP per capita. It shows that the market mechanism affect development path of any economy. Botswana seems not to be confirming this trend, meaning that domestic

credit is not what is driving development in that economy, which might points to the resource endowment of diamond as the driver of development in that economy.

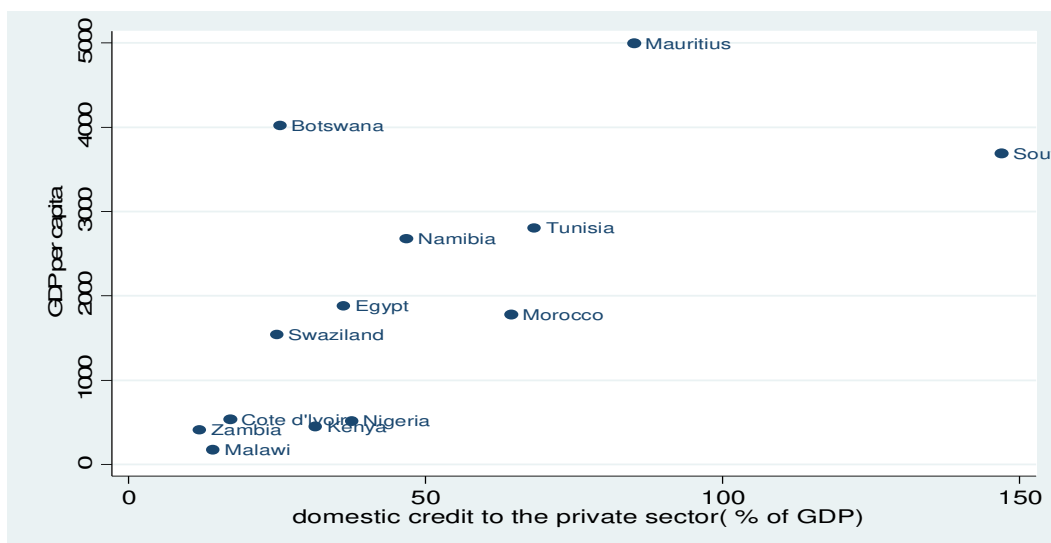


Fig. 8. GDP per capita and domestic credit to private sector

Source: authors' computation.

This is also confirmed for investment for South Africa, Mauritius, Namibia. Zambia seems to have higher investment despite low domestic credit. This is stark indication that investment in Zambia is resource seeking for copper and is not influenced by what is happening in the domestic

economy. Côte d'Ivoire, Ghana and Swaziland show the positive relationship. This supports the results found above that the HDI in Zambia is low, because investment is not domestic driven, but rather might be foreign driven in pursuit of resources.

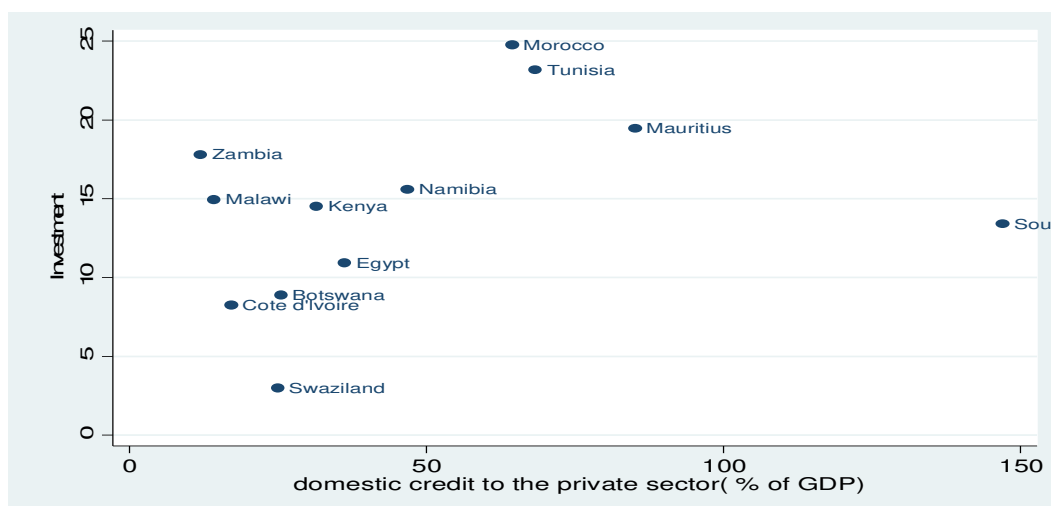


Fig. 9. Investment and domestic credit to private sector

Source: authors' computation.

Time (days) required to start a business and Investment. Figure 10 below shows that the number of days it takes to start a business affect investment one of the development variable. The time required to start a business is a measure of market system and also insti-

tution. It is clear that decline in number of days are associated with increase in investment. This relationship is clear for Kenya, South Africa and Mauritius in 2008. The lesser the number of days for starting business the higher the investment flows into the country.

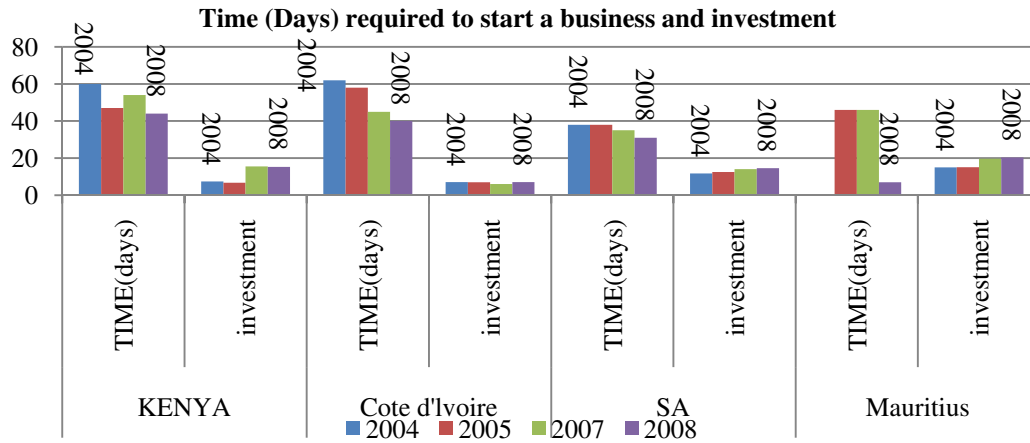


Fig. 10. Time required start a business and investment

Source: authors' computation.

5. Empirical estimation

5.1. Descriptive statistics. The estimated model shows the relationship between the market, institutions and development. The descriptive statistics is as shown in Appendix 2. It shows the minimum and maximum values of our variables. For example, it shows that the mean for lgdpper (logged gross domestic product) is 6.9, while the minimum value is 5.45 and maximum is 8.52. Also depicted on the table of 10 African countries selected no country has, the highest institutional index of 1. The highest is on regulatory quality which is 0.95. This shows that the countries still need to thrive to improve their institutional indexes. Equations estimated.

$$\log(gdpper_{it}) = \alpha_i + \beta_1 rq_{it} + \beta_2 dc - pvt_{it} + \varepsilon_{it}, \quad (\text{Model 1})$$

$$\log(gdpper_{it}) = \alpha_i + \beta_1 cc_{it} + \beta_2 dc - pvt_{it} + \varepsilon_{it}, \quad (\text{Model 2})$$

$$\log(gdpper_{it}) = \alpha_i + \beta_1 da_{it} + \beta_2 dc - pvt_{it} + \varepsilon_{it}. \quad (\text{Model 3})$$

The 3 equations were estimated separately and the results are summarized in the table 2. We estimate 8 equations, starting with regressing each institutional variable alone, thereafter adding domestic credit to the private sector. As can be seen below, all the variables are significant meaning they affect economic growth. It shows that average effect of regulatory quality over gross domestic product per capita is 33 % when regulatory quality changes across time and between countries by one unit holding all other variables constant. Control of corruption is significant at 10%, as shown by results in Appendix 2 (legend given below does not show 10% level). Also, democratic accountability positively affects gross domestic product per capita. When DA is increasing by one, GDP per capita increases by 41% (for equation that include domestic credit and 48% without credit). Our market variable is also significant across the three regressions and has the expected positive sign. The higher the domestic credit to the private sector, the higher the gross domestic product per capita for these selected SSA countries.

This study estimated three models in three different ways for robustness checks. Firstly, each variable proxy of institution was regressed with market measure variable as determinants of development. It has been found out that all the variables are significant and have correct sign. GDP is affected positively by domestic credit and institutions.

5.2. Results using one institutional variable at a time. We estimate panel equation with one institutional variable and market variable measure. The results below show three different equations run for gdp per capita (lgdpper) with definition of variable as given above:

Table 2. Growth and institutional quality

Variable	1	2	3	4	5	6	7	8
Regulatory quality	0.44***	0.33***						
Domestic credit to private sector		0.004***		0.006***		.005***		0.005***
Corruption			0.15	0.14				
Democratic accountability					0.48***	0.41***		
Institutions							0.11***	0.09***
Constant	6.7***	6.6***	6.8***	6.7***	6.6***	6.5***	6.9***	

Legend: * p<0.05; ** p<0.01; *** p<0.001

The same results have also been confirmed using investment as a measure of development. All the institutional variables are significant and have the expected positive sign. Model 1 to Model 4 is just like the gross domestic per capita equations above expect that dependent variable is now investment (gdcf_pvt).

When we combine all institutions using principal component analysis, the variable institutions is significant and shows that when it increases by one unit, GDP will increase by 19%.

Table 3. Investment and institutional quality

Variable	1	2	3	4
Regulatory quality	0.32			
corruption		0.62*		
Democratic accountability			1.2***	
Institutions				0.19***
Constans	2.2***	2.2***	1.7***	2.4***

Legend: *p<0.05; ** p<0.01; *** p<0.001

5.3. Using all the three measures of institution in one regression.

Growth equation:

Equation estimated is $\log(gdpper_{it}) = \alpha_i + \beta_1 rq_{it} + \beta_2 cc_{it} + \beta_3 da_{it} + \beta_4 dc - pvt_{it} + \varepsilon_{it}$.

Table 4. Growth and institutional quality

Variable	Coefficient	P-value
Regulatory quality	0.29	0.00
Domestic credit to private sector	0.04	0.00
Corruption	0.82	0.21
Democratic accountability	0.18	0.01
Investment	0.008	0.00
Constant	6.38	0.00

Legend: * p<0.05; ** p<0.01; *** p<0.001

From the results, it is shown that all the institutional variables and market variable are significant and have the expected positive sign. For example, the average effect of democratic accountability over gross domestic product per capita is 18% when regulatory quality changes across time and between countries. This support the results found above. The same results have been found for investment. However, regulatory quality is not significant for investment equation, but has the expected positive sign.

Investment equation

$\log(gfcf - pvt_{it}) = \alpha_i + \beta_1 rq_{it} + \beta_2 cc_{it} + \beta_3 da_{it} + \beta_4 dc - pvt_{it} + \varepsilon_{it}$.

Table 5. Investment and institutional quality

Variable	Coefficient	P-value
Regulatory quality	0.25	0.305
Corruption	0.05	0.058
Democratic accountability	0.97	0.009
Constant	1.48	0.000

5.4. Robust checks. Robust checks have been done for gross domestic product per capita equation. The robust checks involve adding more variables on growth equation and assess whether the results found above still holds. All other institutional variables are significant and positive, as found above. However, control of corruption is no longer significant. Gross fixed capital formation (investment) has the expected impact on growth and is positive. If investment increase by 1, GDP per capita increase by 0,9%. Inflation, as expected, has a negative sign on gross domestic product per capita. Model 1 just adds investment on growth equation and Model 2 adds inflation and maintain investment. The results indicate that institutions are crucial for the development of Southern Africa countries. Also, the market variable measure on economic development is robust in all cases. It remains significant and positive in all the cases presented, thus, so far.

Growth equation with investment is:

$\log(gdpper_{it}) = \alpha_i + \beta_1 rq_{it} + \beta_2 cc_{it} + \beta_3 da_{it} + \beta_4 dc - pvt_{it} + \beta_5 gfcf - pvt_{it} + \varepsilon_{it}$.

Growth equation with investment and inflation is:

$\log(gdpper_{it}) = \alpha_i + \beta_1 rq_{it} + \beta_2 cc_{it} + \beta_3 da_{it} + \beta_4 dc - pvt_{it} + \beta_5 gfcf - pvt_{it} + inf_{it} + \varepsilon_{it}$.

Table 6. Robust checks with inclusion of investment and inflation

Variable	1	2
Regulatory quality	0.23***	0.28***
Democratic accountability	0.19*	0.17
Corruption	0.022	0.08
Investment	0.007**	0.009***
Domestic credit to private sector	0.004***	0.005***
Inflation		-0.0003***
Constant	6.47***	6.40***

Legend: * p<0.05; ** p<0.01; *** p<0.001

Conclusion

The study shows the link between market, institution and development for 10 Sub-Saharan Africa countries. It has been established that institutions affect development positively. The better the institutions the country has, the higher the level of development. This applies also to credit market. If credit market functions well, development is bound to increase. This has important implication for policy in Africa. Governments should foster to improve their institutions for them to increase development of their economies. Also, improvement in market, especially, credit access, will increase development.

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Appendix 1

Definition of variables

The variables are defined as follows. Regulatory quality (rq) tries to measure the perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. It ranges from 0 being the lowest to 1 being the highest. Countries with high regulatory quality index are Botswana and South Africa in our sample, but it's not 1 with countries outside our sample like Finland scoring 1.

The other institutional variable used is control of corruption (cc) this tries to capture perceptions of the extent to which public power is exercised for private gain. This also varies from 0 to 1, with 1 being the highest indicating zero corruption. The last measure of institutions used is democratic accountability (DA). This tries to capture the perceptions of the extent to which citizens are able to participate in selecting their government. All these three measures can also be grouped as measure of governance which have been defined as “the traditions and institutions by which authority in a country is exercised” (Kraay and Mostruzzi, 2010).

For development, as pointed above, we used gross domestic product per capita and gross fixed capital formation. On the measure of market, the adopted proxy is domestic credit to the private sector as % of GDP. Domestic credit to private sector refers to financial resources provided to the private sector, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment (World Bank, 2011). This has been used to capture whether the market provides credit to the private sector and deduce that the higher the credit might mean the market is not populated by networks that circumvent the operation of the market.

Appendix 2

Table 1. Descriptive statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
Regulatory quality	151	0.54	0.23	0	0.97
Democratic accountability	150	0.61	0.21	0.17	0.92
Corruption	151	0.40	0.18	0	0.83
Gross domestic product per capita	174	1749.4	1572.3	234	7027
Gross fixed capital formation	150	12.18	5.68	-0.2	28.4
Inflation	170	167.77	1872.78	.8	24411
Domestic credit to private sector	147	38.00	37.56	5.07	161.98